UNITED STATES PATENT AND TRADEMARK OFFICE

NOTICE OF ALLOWANCE AND FEE(S) DUE

22801	7590	04/13/2009

LEE & HAYES, PLLC
601 W. RIVERSIDE AVENUE
SUITE 1400
SPOKANE, WA 99201

EXAMINER
CHEN, QING

ART UNIT	PAPER NUMBER
2191	

DATE MAILED: 04/13/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,613	03/08/2004	Leela S. Tamma	MS1-1880US	1791

TITLE OF INVENTION: RELATIONAL DATABASE SCHEMA VERSION MANAGEMENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	07/13/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Complete and send this form, together with applicable fee(s), to: <u>Mail</u> Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22801   7590   04/13/2009

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SPOKANE, WA 99201

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

_____ (Depositor's name)

_____ (Signature)

_____ (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,613	03/08/2004	Leela S. Tamma	MS1-1880US	1791

TITLE OF INVENTION: RELATIONAL DATABASE SCHEMA VERSION MANAGEMENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	07/13/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHEN, QING	2191	717-170000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

   ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

   ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

   (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

   (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

   1 _____

   2 _____

   3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

   PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

   (A) NAME OF ASSIGNEE   (B) RESIDENCE: (CITY and STATE OR COUNTRY)

   Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

   ☐ Issue Fee

   ☐ Publication Fee (No small entity discount permitted)

   ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

   ☐ A check is enclosed.

   ☐ Payment by credit card. Form PTO-2038 is attached.

   ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

   ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.   ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____   Date _____

Typed or printed name _____   Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,613	03/08/2004	Leela S. Tamma	MS1-1880US	1791

EXAMINER
CHEN, QING

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22801   7590   04/13/2009

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SUITE 1400
SPOKANE, WA 99201

DATE MAILED: 04/13/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 550 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 550 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

	Application No.	Applicant(s)	
Notice of Allowability	10/796,613	TAMMA ET AL.	
	Examiner	Art Unit	
	Qing Chen	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to <u>the amendment filed on January 30, 2009, entered by the RCE filed on the same date</u>.

2. ☒ The allowed claim(s) is/are <u>1-7,9,12,13,16 and 18, renumbered as 1-12</u>.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All   b) ☐ Some*   c) ☐ None of the:
        1. ☐ Certified copies of the priority documents have been received.
        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the
            International Bureau (PCT Rule 17.2(a)).
    * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
        Paper No./Mail Date _____.
    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)
1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
    Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
    Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1.   This Office action is in response to the amendment filed on January 30, 2009, entered by the RCE filed on the same date.

2.   **Claims 1-7, 9, 12, 13, 16, and 18** are pending.

3.   **Claims 1, 3, 4, 9, and 13** have been amended.

4.   **Claims 8, 10, 11, 14, 15, 17, and 19-31** have been canceled.

5.   **Claims 1-7, 9, 12, 13, 16, and 18** are allowed, renumbered as 1-12.

6.   The objections to Claims 1-14, 16, 18, and 19 are withdrawn in view of Applicant's amendments to the claims or cancellation of the claims.

Examiner's Amendment

7.   An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this Examiner's amendment was given in a telephone interview with Clay D. Hagler (Reg. No. 61,804) on April 9, 2009.

The application has been amended as follows:

AMENDMENTS TO THE CLAIMS

The amendment document filed on January 30, 2009 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121—namely, the status identifier for Claim 1 is incorrect. In order for the amendment document to be compliant, please amend the status identifier as follows:

On page 4 of the amendment document, please replace the status identifier for Claim 1, "Proposed Amended," with the status identifier "Currently Amended."

Please cancel Claims 14, 15, 17, and 19-31 and amend Claims 1 and 13 as follows:

1. (Currently Amended) A method for generating an installation file for a particular version of a relational database, the method comprising:

given a database system of a particular version, the particular version being unknown prior to execution of the method, determining the particular version of the relational database wherein metadata exists that describes a sequence of multiple versions of the relational database where each version is an upgrade from a previous version, and the particular version is not a first version in the sequence;

automatically determining a first set of scripts, the first set of scripts comprising data definition language (DDL) scripts associated with implementing the particular version of the relational database, wherein the first set of scripts are selected from a plurality of scripts, one or more of the plurality of scripts being not associated with implementing the particular version;

the automatically determining a first set of scripts comprising:

extracting a set A_1 comprising one or more filenames from metadata associated

with a first version in the sequence, the one or more filenames associated with a file

comprising a data definition language (DDL) script associated with the first version;

iteratively extracting a set A_i comprising zero or more filenames from metadata

associated with an ith version of the relational database, the zero or more filenames each

associated with a file comprising a data definition language script to be executed when

upgrading from version $i-1$ of the relational database to version i of the relational

database, where i varies incrementally from 2 to j, where the particular version is j;

and

determining the first set of scripts as a set theory union of sets $A_1, A_2, ..., A_j$;

automatically determining a second set of scripts, the second set of scripts comprising

data manipulation language (DML) scripts associated with implementing the particular version

of the relational database, wherein the second set of scripts are selected from a plurality of

scripts, one or more of the plurality of scripts being not associated with implementing the

particular version[[,]];

the automatically determining a second set of scripts comprising:

extracting a set A_1 comprising one or more filenames from metadata associated

with a first version in the sequence, the one or more filenames associated with a file

comprising a data manipulation language (DML) script associated with the first version;

iteratively extracting a set A_i comprising zero or more filenames from metadata

associated with an ith version of the relational database, the zero or more filenames each

associated with a file comprising a <u>data manipulation language</u> [[DML]] script to be

executed to add or modify a DML object when upgrading from version $i-1$ of the

relational database to version i of the relational database, where i varies incrementally

from 2 to j, where the particular version is j;

iteratively extracting a set B_i comprising zero or more filenames from metadata

associated with an ith version of the relational database, the zero or more filenames each

associated with a file comprising a DML drop script to be executed to drop a DML object

when upgrading from version $i-1$ of the relational database to version i of the relational

database, where i varies incrementally from 2 to j, where the particular version is j;

and

determining the second set <u>of scripts</u> C_j by determining:

$$C_2 = [A_1 \bigcup A_2] - B_2,$$
$$C_3 = [C_2 \bigcup A_3] - B_3,$$
$$C_4 = [C_3 \bigcup A_4] - B_4,$$
$$...$$
$$C_j = [C_{j-1} \bigcup A_j] - B_j.$$

; and

generating an installation file comprising a set theory union of the first set of scripts and

the second set of scripts.

13. (Currently Amended) A method for generating an upgrade file to upgrade version i of a relational database to version j of the relational database, where $j > i$, the method comprising:

determining a set A of data definition language (DDL) scripts that, when executed, perform creates, alters, and drops of DDL objects associated with version i of the relational database, resulting in DDL objects associated with version j of the relational database, wherein the determining a set A comprises:

iteratively extracting sets M_k, each comprising zero or more filenames from metadata associated with a kth version of the relational database, where $i < k <= j$, the zero or more filenames each associated with a file comprising a data definition language script to be executed when upgrading from version $k-1$ of the relational database to version k of the relational database; and

determining the set A as the set theory union of sets $M_{i+1}, M_{i+2}, ..., M_j$

$(A = M_{i+1} \bigcup M_{i+2} \bigcup ... \bigcup M_j)$;

determining a set B of data manipulation language (DML) scripts that, when executed, create DML objects that are associated with version j of the relational database, but that are not associated with version i of the relational database, wherein the determining a set B comprises:

determining a set E of DML scripts that when executed:

perform alters of DML objects associated with version i and version j of

the relational database, but that differ between version i and version j of the

relational database; and

perform creates of DML objects that are associated with version j of the

relational database but that are not associated with version i of the relational

database; and

determining set B as the difference between sets E and C $(B = E - C)$;

determining a set C of DML scripts that, when executed, modify DML objects that are

associated with both version i and version j of the relational database, but that differ between

version i and version j of the relational database, wherein the determining a set C comprises:

determining a set E of DML scripts that when executed:

perform alters of DML objects associated with version i and version j of

the relational database, but that differ between version i and version j of the

relational database; and

perform creates of DML objects that are associated with version j of the

relational database but that are not associated with version i of the relational

database;

determining a set F_j of DML scripts that when executed, create DML objects

associated with version j of the relational database; and

determining set C as [[the]] a set theory intersection of set E and set F_j

$(C = E \bigcap F_j)$;

determining a set D of DML drop scripts that, when executed, drop DML objects that are associated with version i of the relational database, but that are not associated with version j of the relational database, wherein the determining a set D comprises:

determining a set E of DML scripts that when executed:

perform alters of DML objects associated with version i and version j of the relational database, but that differ between version i and version j of the relational database; and

perform creates of DML objects that are associated with version j of the relational database but that are not associated with version i of the relational database;

iteratively determining a set F_x of DML scripts that when executed, drop DML objects associated with version $x-1$ of the relational database that are not associated with version x of the relational database, where x varies incrementally from $i+1$ to j;

determining a set G as the set theory union of sets $F_i, F_{i+1}, F_{i+2}, \dots, F_j$

$(G = F_i \bigcup F_{i+1} \bigcup \dots \bigcup F_{i+2})$; and

determining set D as the difference between set G and set E $(D = G - E)$; and

generating an upgrade file comprising a set theory union of sets A, B, C, and D

$(A \bigcup B \bigcup C \bigcup D)$.

14. (Canceled)

15. (Canceled)

17. (Canceled)

19-31. (Canceled)

-- END OF AMENDMENT --

Reasons for Allowance

8.   The following is an Examiner's statement of reasons for allowance:

The cited prior art taken alone or in combination fail to teach, in combination with the

other claimed limitations,

"the automatically determining a first set of scripts comprising:

extracting a set A_1 comprising one or more filenames from metadata associated

with a first version in the sequence, the one or more filenames associated with a file

comprising a data definition language (DDL) script associated with the first version;

iteratively extracting a set A_i comprising zero or more filenames from metadata

associated with an ith version of the relational database, the zero or more filenames each

associated with a file comprising a data definition language script to be executed when

upgrading from version $i-1$ of the relational database to version i of the relational

database, where i varies incrementally from 2 to j, where the particular version is j;

and

determining the first set of scripts as a set theory union of sets $A_1, A_2, ..., A_j$;" and

"the automatically determining a second set of scripts comprising:

extracting a set A_1 comprising one or more filenames from metadata associated

with a first version in the sequence, the one or more filenames associated with a file

comprising a data manipulation language (DML) script associated with the first version;

iteratively extracting a set A_i comprising zero or more filenames from metadata

associated with an ith version of the relational database, the zero or more filenames each

associated with a file comprising a data manipulation language script to be executed to

add or modify a DML object when upgrading from version $i-1$ of the relational database

to version i of the relational database, where i varies incrementally from 2 to j, where

the particular version is j;

iteratively extracting a set B_i comprising zero or more filenames from metadata

associated with an ith version of the relational database, the zero or more filenames each

associated with a file comprising a DML drop script to be executed to drop a DML object

when upgrading from version $i-1$ of the relational database to version i of the relational

database, where i varies incrementally from 2 to j, where the particular version is j;

and

determining the second set of scripts C_j by determining:

$$C_2 = [A_1 \bigcup A_2] - B_2,$$
$$C_3 = [C_2 \bigcup A_3] - B_3,$$
$$C_4 = [C_3 \bigcup A_4] - B_4,$$
$$...$$
$$C_j = [C_{j-1} \bigcup A_j] - B_j.$$

" as recited in independent Claim 1; and further fail to teach, in combination with the other claimed limitations,

"wherein the determining a set A comprises:

iteratively extracting sets M_k, each comprising zero or more filenames from

metadata associated with a kth version of the relational database, where $i < k <= j$, the

zero or more filenames each associated with a file comprising a data definition language

script to be executed when upgrading from version $k-1$ of the relational database to

version k of the relational database; and

determining the set A as the set theory union of sets $M_{i+1}, M_{i+2}, ..., M_j$

$(A = M_{i+1} \bigcup M_{i+2} \bigcup ... \bigcup M_j)$,"

"wherein the determining a set B comprises:

determining a set E of DML scripts that when executed:

perform alters of DML objects associated with version i and version j of the relational database, but that differ between version i and version j of the relational database; and

perform creates of DML objects that are associated with version j of the relational database but that are not associated with version i of the relational database; and

determining set B as the difference between sets E and C $(B = E - C)$,"

"wherein the determining a set C comprises:

determining a set E of DML scripts that when executed:

perform alters of DML objects associated with version i and version j of the relational database, but that differ between version i and version j of the relational database; and

perform creates of DML objects that are associated with version j of the relational database but that are not associated with version i of the relational database;

determining a set F_j of DML scripts that when executed, create DML objects associated with version j of the relational database; and

determining set C as [[the]] a set theory intersection of set E and set F_j

$(C = E \bigcap F_j)$," and

"wherein the determining a set D comprises:

determining a set E of DML scripts that when executed:

perform alters of DML objects associated with version i and version j of

the relational database, but that differ between version i and version j of the

relational database; and

perform creates of DML objects that are associated with version j of the

relational database but that are not associated with version i of the relational

database;

iteratively determining a set F_x of DML scripts that when executed, drop DML

objects associated with version $x-1$ of the relational database that are not associated

with version x of the relational database, where x varies incrementally from $i+1$ to j;

determining a set G as the set theory union of sets $F_i, F_{i+1}, F_{i+2}, ..., F_j$

$(G = F_i \bigcup F_{i+1} \bigcup ... \bigcup F_{i+2})$; and

determining set D as the difference between set G and set E $(D = G - E)$" as

recited in independent Claim 13.

The closest cited prior art, the combination of US 6,970,876 (hereinafter "Hotti"), US

6,415,299 (hereinafter "Baisley"), and "Set Theory," July 2002 (hereinafter "Set_Theory"),

teaches a method and an arrangement associated with managing database schemas. However, the

combination of Hotti, Baisley, and Set_Theory fails to teach

"the automatically determining a first set of scripts comprising:

extracting a set A_1 comprising one or more filenames from metadata associated

with a first version in the sequence, the one or more filenames associated with a file

comprising a data definition language (DDL) script associated with the first version;

iteratively extracting a set A_i comprising zero or more filenames from metadata

associated with an ith version of the relational database, the zero or more filenames each

associated with a file comprising a data definition language script to be executed when

upgrading from version $i-1$ of the relational database to version i of the relational

database, where i varies incrementally from 2 to j, where the particular version is j;

and

determining the first set of scripts as a set theory union of sets $A_1, A_2, ..., A_j$;" and

"the automatically determining a second set of scripts comprising:

extracting a set A_1 comprising one or more filenames from metadata associated

with a first version in the sequence, the one or more filenames associated with a file

comprising a data manipulation language (DML) script associated with the first version;

iteratively extracting a set A_i comprising zero or more filenames from metadata

associated with an ith version of the relational database, the zero or more filenames each

associated with a file comprising a data manipulation language script to be executed to

add or modify a DML object when upgrading from version $i-1$ of the relational database

to version i of the relational database, where i varies incrementally from 2 to j, where

the particular version is j;

iteratively extracting a set B_i comprising zero or more filenames from metadata

associated with an ith version of the relational database, the zero or more filenames each

associated with a file comprising a DML drop script to be executed to drop a DML object

when upgrading from version $i-1$ of the relational database to version i of the relational

database, where i varies incrementally from 2 to j, where the particular version is j;

and

determining the second set of scripts C_j by determining:

$$C_2 = [A_1 \bigcup A_2] - B_2,$$
$$C_3 = [C_2 \bigcup A_3] - B_3,$$
$$C_4 = [C_3 \bigcup A_4] - B_4,$$
$$...$$
$$C_j = [C_{j-1} \bigcup A_j] - B_j.$$

" as recited in independent Claim 1; and further fails to teach

"wherein the determining a set A comprises:

iteratively extracting sets M_k, each comprising zero or more filenames from

metadata associated with a kth version of the relational database, where $i < k <= j$, the

zero or more filenames each associated with a file comprising a data definition language

script to be executed when upgrading from version $k-1$ of the relational database to

version k of the relational database; and

determining the set A as the set theory union of sets $M_{i+1}, M_{i+2}, ..., M_j$

$(A = M_{i+1} \bigcup M_{i+2} \bigcup ... \bigcup M_j)$,"

"wherein the determining a set B comprises:

determining a set E of DML scripts that when executed:

perform alters of DML objects associated with version i and version j of

the relational database, but that differ between version i and version j of the

relational database; and

perform creates of DML objects that are associated with version j of the

relational database but that are not associated with version i of the relational

database; and

determining set B as the difference between sets E and C $(B = E - C)$,"

"wherein the determining a set C comprises:

determining a set E of DML scripts that when executed:

perform alters of DML objects associated with version i and version j of

the relational database, but that differ between version i and version j of the

relational database; and

perform creates of DML objects that are associated with version j of the

relational database but that are not associated with version i of the relational

database;

determining a set F_j of DML scripts that when executed, create DML objects

associated with version j of the relational database; and

determining set C as [[the]] a set theory intersection of set E and set F_j

$(C = E \bigcap F_j)$," and

"wherein the determining a set D comprises:

determining a set E of DML scripts that when executed:

perform alters of DML objects associated with version i and version j of

the relational database, but that differ between version i and version j of the

relational database; and

perform creates of DML objects that are associated with version j of the

relational database but that are not associated with version i of the relational

database;

iteratively determining a set F_x of DML scripts that when executed, drop DML

objects associated with version $x-1$ of the relational database that are not associated

with version x of the relational database, where x varies incrementally from $i+1$ to j ;

determining a set G as the set theory union of sets $F_i, F_{i+1}, F_{i+2}, ..., F_j$

$(G = F_i \bigcup F_{i+1} \bigcup ... \bigcup F_{i+2})$; and

determining set D as the difference between set G and set E $(D = G - E)$ " as

recited in independent Claim 13.

Any comments considered necessary by Applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Conclusion

9.   Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The

Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM.

The Examiner can also be reached on alternate Fridays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's

supervisor, Wei Zhen, can be reached on 571-272-3708. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Q. C./

Examiner, Art Unit 2191

/Wei Y Zhen/

Supervisory Patent Examiner, Art Unit 2191